Work Plan for Fiscal Year 2003

I. Program Title. Anadromous Fish Screen Program CVPIA Section 3406 (b)(21)

II. Responsible Entities

	Agency	Staff Name	Role
Lead	USFWS	A. Leigh Bartoo	NEPA/ESA Compliance, Biological Review
Co-lead	USBR	William O=Leary Debbie Coleman William Dutton	Acting Program Manager Administrative Support Project Engineer

III. Program Objective for FY 2003

The primary objective of the Anadromous Fish Screen Program (AFSP) is to protect juvenile chinook salmon-all runs, steelhead trout, green and white sturgeon, striped bass and American shad from entrainment at priority diversions throughout the Central Valley. Section 3406(b)(21) of the CVPIA requires the Secretary of the Interior to assist the State to develop and implement measures to avoid losses of juvenile anadromous fish resulting from unscreened or inadequately screened diversions on the Sacramento and San Joaquin rivers, their tributaries, the Delta, and the Suisun Marsh. In addition, Goal 3 of the Ecosystem Restoration Program=s Implementation Plan (ERP) (7/18/01, page 29, Goal 3), states AMaintain and/or enhance populations of selected species for sustainable commercial and recreational harvest consistent with the other ERP Strategic Goals.@ Discussion of this goal indicates restoration for all the fish species, except striped bass, that the AFSP would also help protect.

A. Develop and implement measures to avoid losses of juvenile anadromous fish resulting from unscreened or inadequately screened diversions on the Sacramento River, San Joaquin River, their tributaries, the Delta, and the Suisun Marsh.

IV. Status of the Program

The AFSP serves two functions in its efforts to protect juvenile anadromous fish. First, the Program is a source of funds to diverters that want to install fish screens on their diversions. Funds are provided on a priority basis, as discussed in the AFSP document, Program Description. Second, an AFSP Technical Team has been assembled, containing experts representing various appropriate federal and state resource and regulatory agencies, to provide fish screen development guidance to the diverters, and their consultants, throughout the various project phases. At this time, the AFSP continues to perform both of these functions.

The AFSP has worked with large and small diverters (diversions ranging from 17 cubic feet/second ((cfs)) up to 1,000 cfs) in installing civil engineering works allowing them to take water for agricultural purposes, while leaving the juvenile fish in the waterway, unharmed. Currently, the Program is involved with 8 diverter applicants (including one agricultural diverter of 1,000 cfs and one municipal and industrial diverter with two separate diversions) in various phases of the project, i.e. from feasibility study to construction.

Lack of secure funding is the biggest problem of interested diverters in becoming involved in a project that culminates in installing a fish screen in front of their diversions. Construction projects of this sort are phased in, starting with a feasibility study, then preliminary design (in conjunction with preliminary preparation of environmental documents, etc.), final design (in conjunction with completion of appropriate documents), and construction. Thus, the diverter needs to commit to performing the initial phases, for which he/she will have monetary responsibility if preliminary results are not adequately encouraging to continue the project. Also, the diverter is committing him/herself to an action which will take place several years in the future, without certainty of the total cost of the project, or from where the funds will be coming. Finally, upon completion, the diverter is solely responsible for the operation and maintenance of the fish screen project.

The AFSP is allowed to provide up to a maximum of 50% of the total cost of a fish screen project. The situation has improved somewhat for diverters since the AFSP has been integrated with CALFED, a source of State and potential Federal funds; thus requiring the diverter to become involved with fewer agencies in search of needed funds.

Uncertain funding in future years may affect projects currently in design or under construction for which the AFSP has previously provided funding. If the project has to be demobilized because of a funding shortage, the project will generally cost more since remobilization adds to the cost; meanwhile, the diverter has to be able to divert water during the construction phase. Finally, until the project is completed, juvenile fish are still being taken.

IV. FY 2002 Accomplishments

Construction was completed in FY02 on the Banta-Carbona Irrigation District fish screen project which now diverts 260 cfs of screened water from the San Joaquin River, via a canal. Because of the physical configuration of the river at this location and the pumping plant located at the end of a canal, the decision was made to construct a vee shaped screen in the canal, and include a bypass and pump to translocate the fish back to the river. The facility is now constructed for protection of Delta smelt, meeting regulatory agency design criteria for Delta smelt.

Two other projects currently under construction involve diversions by the City of Sacramento, a municipal and industrial water purveyor. First, the City needed to upgrade its diversion from the Sacramento River. The original structure did not provide the ability to install fish screens on the structure. Thus, for this reason and several others, the diversion was relocated downstream and will be connected to the original water treatment plant upon completion. This diversion is considered to be within the area in which Delta smelt may be found, therefore this diversion is designed to meet the appropriate Delta smelt fish screen criteria. The AFSP contributed funds to the earlier phases of this project and has contributed funds towards its construction. Construction is anticipated to be completed by December 2003.

The other project under construction by the City of Sacramento is an enlargement of its diversion from the American River. As with other projects in which the AFSP is involved, it is working closely with the City and its consultants. This diversion is being doubled in size to enable the City to divert the amount of water it originally intended, and will be screened to prevent take of listed species. The AFSP is providing cost-share funding for that portion of the project equal to its maximum historical diversion rate. For both screen projects, cost-share funding is only being provided for features of the projects required for screening and protecting fish. Construction is anticipated to be completed by November 2003.

Finally, the AFSP funded an Agreement in FY01 with the University of California, Davis to perform fish screen treadmill studies on fish species of interest to the Program. The University is currently completing ongoing tasks in FY02 as outlined in this Agreement. Tasks include the performance of biological tests on fish under the influence of different fish screen diversion conditions. Behavioral observations for species of different sizes, at different temperatures and time of day, and at different approach and sweeping velocity combinations are ongoing. Fish injury and latent mortality are also being investigated with results presented in draft form for AFSP technical team and other peer review.

VI. Tasks, Costs, Schedules and Deliverables

A. Narrative Explanation of Tasks.

1. Program Management. As discussed in priority 6 of the ERP=s Restoration Priorities for the Sacramento Region, the AFSP will continue the work on ongoing fish screen projects currently supported by the CVPIA and CALFED and conduct studies to improve knowledge of implications of fish screens on fish populations. The AFSP has worked with the fish screen projects discussed below, but will also potentially work on additional projects resulting from integration with CALFED. To date, four million four hundred and thirty three thousand dollars ($4,433,000) have been identified for the Program from the Restoration Fund in FY03. Six hundred and forty three thousand two hundred and sixteen dollars ($ 643,216) are needed for program management and hired expertise (see table A. CVPIA Program Budget), and the remaining $ 3,789,784 is intended to be used for cost-share funding of the projects discussed below. Additional funding provided to AFSP for projects through the CALFED solicitation process is currently underway and is prioritized according to the established CALFED procedures. Meanwhile, diverters will continue to be contacted to determine if they would like to receive help in placing a fish screen in front of their diversions. Those diverters who either agree to accept or request this help, will be assisted by the AFSP to construct a fish screen that will meet their diversion needs and meet regulatory agencies= fisheries protection needs. This is accomplished by having the AFSP Technical Team and Program Manager meet with the diverters and their consultants/contractors as often as needed to discuss problems and solutions. The following discussions address ongoing projects requiring additional funds. Additional funding needs discussed below are only a fraction (based on the $4,433,000 available) of those funds actually needed.

1.1 Princeton-Codora-Glenn/Provident Irrigation District - preliminary evaluations have indicated that the fish screen does not meet regulatory agency criteria. Funds are needed to analyze the situation to determine what needs to be done to bring this screen into compliance, to perform the needed work, and finally to evaluate the screen to enable the fish regulatory agencies to determine that it performs satisfactorily. Additional modifications on this diversion, such as placement of baffles behind the screens may be found to be necessary and expensive since most, if not all, of the work on this diversion would be performed in the river. The work would be performed by a contractor of the District, with oversight and review by the AFSP Technical Team. **Estimated Cost=$125,000**

1.2 Sutter Mutual Water Company - has initiated final design for its fish screen project in FY02. This diversion, which diverts about 1,000 cfs, is currently the largest unscreened diversion from the Sacramento River; thus, the urgency in screening it. During the current phase of the project, the Company is preparing the environmental documents, the final design and specifications for the facility, and preparing the

post-construction evaluation and assessment plan and the long-term operation and maintenance plan. Construction elements of the project will be initiated in FY03. Cost-share funding of $2,500,000 has been committed in FY02 through the AFSP for activities pertaining to design completion and the initiation of project construction. Cost-share funding of $1,270,000 has also been committed through the CALFED proposal solicitation process for FY02 and constitutes a portion of the non-federal cost share. Funding in the subsequent construction phases will be cost shared such that the AFSP will not provide more than 50% of the total cost of the project. **Estimated Cost=$ 756,031**

1.3. Natomas Mutual Water Company - has initiated final engineering designs and permitting in FY02. This project will consist of consolidating five existing unscreened diversions into two screened diversions for a total of about 630 cfs on the Sacramento River. Cost-share funding of $2,290,000 has been committed in FY02 through the AFSP for right of way acquisition and initiation of construction. Non-federal cost share funding is currently being secured through the CALFED Directed Action process. The exact amount has, however, not been determined. Funding in the subsequent construction phases will be cost shared such that the AFSP will not provide more than 50% of the total cost of the project. Construction will start in Fall 03. **Estimated Cost=$ 821,120**

1.4 Reclamation District 108 - has conducted a reconnaissance investigation for screening three of their pumping plants along the Sacramento River. Options include screening the three individual facilities for a total of 377 cfs, or consolidating the facilities into a 260 cfs screened diversion. The consolidated alternative would require the construction of new and more efficient canal systems interconnecting the three separate diversions, thereby requiring less diversions to meet the same water needs. The District is receiving $1,380,000 in FY02 for completion of project design and environmental documents, post construction evaluations and assessment plans and long term operation and maintenance plans needed to construct the project. Construction will be initiated in FY03. Non-federal cost share funding is currently being secured through the CALFED Directed Action process. The exact amount has, however, not been determined. Funding in the subsequent construction phases will be cost shared such that the AFSP will not provide more than 50% of the total cost of the project. **Estimated Cost=$ 487,540**

1.5 Meridian Farms Water Company - diverts water from the Sacramento River to irrigate 10,000 acres in Sutter County from three diversions (sized at 100 cfs, 50 cfs and 40 cfs). This Company has been working with the AFSP with the intention of consolidating these diversions, if possible, and installing a fish screen on the new diversion. Cost share funding of $300,000 from the AFSP has been committed in FY02 for the completion of environmental documental and permits and the completion of final design. Cost-share funding of $750,000 has also been committed through the CALFED proposal solicitation process for FY02 and constitutes a portion of the non-federal cost share. This project will be ready for construction in FY03. E**stimated Cost=$ 256,600**

1.6 Pleasant Grove-Verona Mutual Water Company – diverts roughly 200 cfs of water from the Sacramento River via two diversions and the rest of its water from the Natomas Cross Canal via three diversions, to irrigate about 7,300 acres of farm land in Sutter County. (During low water years, Sacramento River water is pumped into the Cross Canal.) This Company has been working with the AFSP with the intention of consolidating diversions, considering relocating diversion from the Cross Canal to the River and installing fish screens as necessary. Cost share funding of $600,000 from the AFSP has been committed in FY02 for the completion of environmental documentation and preliminary designs. Final design and construction will commence in FY03. **Estimated Cost= $384,900**

1.7 City of Sacramento - two diversions, one from the Sacramento River-which is being relocated downstream, the other from the American River (Fairbairn Water Treatment Plant)-which is being enlarged to meet its originally intended diversion capability, initiated construction during FY01. The Cooperative Agreement recognizes that these projects will cost approximately $42,000,000; however, $10,002,430 was agreed to be the AFSP cost-share, attributable to the fish screen aspects of this project. The original Agreement provided the City with $6,999,930 o of FY 99 funds and recognized that, should funds be available, up to an additional $3,002,500 would be provided to the City. During FY 01 no additional federal funds were available and the California Department of Fish and Game volunteered to provide $700,000 of its Proposition 204 funds toward this project. In FY02, $331,000 was made available to the City from the Restoration Fund.
An additional $1,971,500 is needed to provide the $10,002,430, tentatively obligated in the Agreement. If funds are not available this fiscal year, the City should be made the AFSP=s top priority for FY04 funds, not only because our Agreement states that additional funds would be provided when they become available, but also because it indicates to other unscreened diverters that we fully support our Agreements. **Estimated Cost= $ 252,943**

1.8 RD2035 – Reclamation District 2035 has a 400 cfs diversion on the Sacramento River just upstream of the City of Sacramento. The diversion provides irrigation water for over 17,000 acres of irrigated land in Yolo County. The District also manages 2,000 acres of waterfowl habitat on a year round basis. The fish screen structure for this diversion is in final design stage and should be completed in early Funding to this point has been provided through CALFED. The 30% design Drawings have been reviewed by the AFSP Technical Team. This project will be ready for construction in FY03. **Estimated Cost= $705,650**

1.9 Program Management-as stated above, the function of the AFSP is to protect juvenile anadromous fish specified in the Central Valley Project Improvement Act. Protection is provided by encouraging and facilitating the construction of fish screens and other facilities that will avoid or minimize entrainment of the juvenile stage of the specified species. However, the AFSP is ongoing and is involved with projects beyond those discussed above. Costs for this aspect of the AFSP involves salaries and benefits for Program Managers, technical support, administrative

support, engineers and concomitant overhead costs (see Tables below). Some of the management tasks for the AFSP include design review, developing and tracking budgets, reviewing invoices, coordinating Technical Team actions, preparing grants, and coordinating environmental compliance. E**stimated Cost=$ 643,216**

Total CVPIA Estimated Cost=$ 4,433,000

Additional Funding Needs

Princeton-Codora-Glenn/Provident I.D.-as mentioned above in section VI.A.1, the modification(s) needed to make this fish screen project work appropriately will be performed in the water. Work performed in the water may be costly. Additional funds will probably be required to resolve flow problems identified above.

City of Sacramento - its projects on the Sacramento and the American rivers are in the continuing construction phase. These projects are anticipated to be completed during the winter of 2003, and are currently are ahead of schedule. Once completed the City will be required to satisfactorily perform and complete post-construction evaluation tests on each of the projects. As mentioned in subsection A.7, immediately above, the funding provided to the City has been short of the cost-share funds identified as appropriate to be provided to the City. Thus, it would be appropriate that any available additional funds be directed to funding this grantee=s existing Agreement.

In addition to the ongoing projects discussed above, and their continuation to completion in out years, there are unforeseen issues with existing project proponents and new projects that the AFSP has been asked to participate in, but has not for lack of cost-share funds. One existing project proponents in contact with the AFSP is the M&T Ranch. This diverter installed fish screens several years ago, but now has a problem with river meander causing gravel bank formation affecting the sweeping and approach velocities of the screens. This diversion helps supply water to the Ranch, and a State and a Federal wildlife refuge. The ranch is not only looking for short-term aid to remove the banks, but also long-term aid to study the meander and bank formation to determine how best to maintain water diversion capability when the waterway is meandering. Other potential new projects brought to the attention of the AFSP include those relatively small unscreened diversions covered under the Family Water Alliance Small Screen Program on the Sacramento River, and unscreened diversions on the San Luis National Wildlife Refuge Complex on the San Joaquin River, and others.

B. Schedule and Deliverables

#	Task	Dates		Deliverable
		Start	Complete	
1.1	Princeton-Codora-Glenn/Provident I.D.	Ongoing	09/30/03	Fish screen that meets regulatory agencies= criteria/concerns
1.2	Sutter Mutual Water Co.	10/01/02	06/30/05	Final design, initiation of construction
1.3	Natomas Mutual Water Co.	Ongoing	06/30/05	Final design, initiation of construction
1.4	RD108	10/01/02	06/30/05	Final design, initiation of construction
1.5	Meridian Farms Water Co.	10/01/02	06/30/05	Final design, initiation of construction
1.6	Pleasant Grove/Verona Mutual Water Co.	10/01/02	06/30/05	Final design, initiation of construction
1.7	City of Sacramento	Ongoing	12/31/03	Completion of two M&I diversions, ready for post-construction evaluation tests
1.8	RD2035	10/01/02	06/30/05	Final design, initiation of construction

Explanatory Notes: *1.2, 1.3, 1.4, 1.5, 1.6, and 1.8 - in the out years the deliverable will be diversions with fish screens that meet regulatory agencies= criteria/concerns. Accurate schedules cannot be provided until final designs are successfully completed, but a reasonable estimate would be two years beyond the final design completion date.

Schedule and Deliverables - Additional Funding Needs

Princeton-Codora-Glenn/Provident I.D.	Ongoing	6/30/03	A fish screen that meets regulatory agencies= criteria/concerns
City of Sacramento	Ongoing	12/31/03	Agreement stipulates that the City would receive $ 1,971,500, if available

Explanatory Notes: A.1.1 is undergoing evaluations that will indicate what will need to be done to make the screen meet regulatory agencies= criteria

D . CVPIA Program Budget

#	Task	FTE	Direct Salary and Benefits Costs	Contracts Costs	Miscellaneous Costs		
A9	Program Management	-----					
	Fish & Wildlife Service	1.5	$147,875	$113,000*	$0	$34,660	**$295,535**
	Bureau of Reclamation	2.3	$307,106**	$0	$0	$0	**$307,106**
	Projects						
A.1	Princeton-Codora-Glenn /PID			$125,000			**$125,000**
A.2	Sutter Mutual Water Company			$756,031			**$756,031**
A.3	Natomas Mutual Water Company			$821,120			**$821,120**
A.4	Reclamation District 108			$487,540			**$487,540**
A.5	Meridian Farms			$256,600			**$256,600**
A.6	Pleasant-Grove Verona Mutual Water Company			$384,900			**$384,900**
A.7	City of Sacramento			$252,943			**$252,943**
A.8	RD 2035			$705,650			**$705,650**
	Total by Category	**3.8**	**$484,556**	**$3,902,784**	**$0**	**$45,660**	**$4,433,000**

Explanatory Notes: * National Marine Fisheries Service Engineer

** is comprised of partial time of 3 staff, and includes funds for engineering project review, contract preparation, travel and administration

CVPIA Program Budget - Additional Funding Needs.

Task	FTE	Direct Salary and Benefits Costs	Contract Costs	Misc. Costs	Admin Costs	Total Costs
City of Sacramento	0.0	$0	$1,718,557	$0	$0	**$1,718,557**
PCG/P I.D.*	0.0	$0	UNKNOWN	$0	$0	**$0**
Total by Category	**0.0**	**$0**	**$1,718,557**	**$0**	**$0**	**$1,718,557**

Explanatory Notes: * This District=s diversion may need additional work to meet current fish screen criteria. At this time it is not possible to determine what the cost may be since the AFSP is still evaluating the situation to determine what potential modifications/repairs might be needed to ameliorate the current situation.

VII. Future Years Commitments/Actions

The long-term effects of the projects presented and discussed in this Annual Work Plan are:

1) It is not possible to determine if any future funding commitment is needed for Princeton-Codora-Glenn/Provident I.D. at this time. An investigation is currently underway to determine what is needed to enable this diversion=s fish screens to meet criteria. If additional funds are needed it would be likely that they would be needed during FY03 rather than in future years. This District diverts in excess of 600 cfs and the total project cost is in excess of $11,000,000. Providing the funding need to complete this project, i.e., to enable this diversion to meet regulatory agencies= concerns/criteria, if funds are needed, should be a prime concern of CVPIA managers.

2) Sutter Mutual Water Co. is an expensive project because it involves a large diversion, about 1,000 cfs. In addition, it may involve relocation, new pumps, etc. After the final design phase is completed in FY 03 the next phase is construction. This project will probably have a total construction cost in excess of $ 20 million, with an anticipated completion date of Summer 2005.

3) Meridian Farms is a relatively smaller project (190 cfs). However, consolidation of three diversions is being considered, which should be less expensive than separately screening each of the diversions, but more expensive than screening one existing diversion of 190 cfs. At this relatively early stage of development, a rough estimate of the total cost of construction for this project is about $4 million.

4) Pleasant Grove-Verona Mutual Water Company is another relatively small diversion (about 200 cfs). This project potentially involves consolidating several diversions that take water from different water sources , i.e. the Sacramento River and the Natomas Cross Canal. At this relatively early stage of development, a rough estimate of the total cost of construction for this fish screen project is about $ 4.5 million.

5) Providing the additional $ 1,714,630 addressed in this Annual Work Plan, to the City of Sacramento would demonstrate DOI=s commitment to its Agreements. In turn, the City of Sacramento would use these funds to help complete its two municipal and industrial diversions with appropriate fish screens.

6) Natomas Mutual Water Company has a screen project involving the consolidation of three diversions (on the Sacramento River and Natomas Cross Canal), totaling about 560 cfs, into one or two screened diversions. Total cost of the project is estimated at about $22 million with an anticipated construction completion date of Summer 2005.

7) RD108 has a screen project that is investigating the screening of 3 individual diversions on the Sacramento River (377 cfs total) or consolidating them into one screened diversion with a more efficient land side conveyance system (260 cfs total). Total cost of the project is estimated at about $15 million with an anticipated construction completion date of Summer 2005.

8) RD2035 has a screen project totaling about 400 cfs on the Sacramento River above the City of Sacramento. Total cost of the project is estimated at about 10 million with an anticipated completion date of Summer 2005.

Many diverters are concerned that regulatory agencies may more strongly enforce listed species regulations to cause more diversions to become adequately screened. In addition, many of these diverters state that they do not have the funds needed to place fish screens in front of their diversions. The diverters are concerned with initiating fish screen projects with no funding source to complete the projects, leaving them to finish their projects. Thus, before they are willing to initiate a fish screen project, they want assurance that the funding source is committed.